



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,443	09/16/2003	Tomohiro Yamaguchi	018656-678	9825
21839 7590 11/10/2011 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				
EXAMINER VO, QUANG N				
ART UNIT 2625		PAPER NUMBER		
NOTIFICATION DATE 11/10/2011		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com  
offserv@bipc.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/662,443  
Filing Date: September 16, 2003  
Appellant(s): YAMAGUCHI ET AL.

YAMAGUCHI ET AL.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 08/01/2011 appealing from the Office action mailed 02/01/2011.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-25 are pending in the application and stand finally rejected. Claims 1, 6, 11 and 14 are independent. Claims 2-5, 7-10, 12, 13 and 15-25 are dependent.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

#### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

#### **(8) Evidence Relied Upon**

5025481	Ohuchi, Satoshi	6-1991
6272248	Saitoh et al.	08-2001
6268935	Kingetsu et al.	07-2001

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6-8, 11-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohuchi (US 5,025,481) in view of Saitoh et al. (Saitoh) (US 6,272,248).

Regarding claim 1:

Ohuchi discloses an image processing apparatus (**e.g., FIG. 3 is a system block diagram showing an embodiment of a dot region discriminating apparatus, column 5, lines 32-36**) that handles image data, comprising: a dividing unit (**e.g., the**

**dot region detecting part 13, fig. 3)** for dividing image data into large blocks of a prescribed size (e.g., **dividing the input image into blocks B (e.g., fig. 6) each comprising  $N \times N$  pixels, fig. 5, column 18, lines 15-17)** and further subdividing the large blocks into multiple smaller blocks (e.g., each block B is subdivided into the small regions C(i), figure 16, column 18, lines 17-18); a large block isolated point calculation unit (e.g., **the dot region detecting part 13, fig. 3)** for calculating a first number of isolated points contained in each large block established by dividing unit (e.g., **the dot region detecting part 13, fig. 3, discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, based on the relationship between a number P.sub.0 of extreme points of the object block B.sub.0, column 18, lines 25-30)**; a small block isolated point calculation unit (e.g., **the dot region detecting part 13, fig. 3 (which is also functioning as a small block isolated point calculation unit)** for calculating a respective second number of isolated points contained in each small block established by dividing unit (e.g., **subdivides each block B into a plurality of small regions C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21, figure 16.** Note: For further explanation, Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein (e.g., **subdivides each block B into a plurality of small regions C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small**

**region C.sub.i of each block B, column 18, lines 17-21), based on the respective second numbers calculated by the small block isolated point calculation unit (e.g.,**

**When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as P=0 if a number Q of small regions C.sub.i in which q=0 is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15); and a halftone-dot region determination unit (e.g., the dot region detecting part 13, fig. 3) for determining that a specified large block among the large blocks established by the dividing unit is a halftone-dot region (e.g., the dot region detecting part 13, fig. 3, discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, column 18, lines 25-28); if the first number of isolated points calculated to be contained in the specified large block by the large block isolated point calculation unit is greater than or equal to a first prescribed value (e.g., the dot region detecting part 13, fig. 3, discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, based on the relationship between a number P.sub.0 of extreme points of the object block B.sub.0 and numbers P.sub.1 through P.sub.8 of extreme points of surrounding blocks B.sub.1 through B.sub.8., column 18, lines 25-31. Note: Examiner interprets numbers P.sub.1 through P.sub.8 of extreme points of surrounding blocks B.sub.1 through B.sub.8 as being a first prescribed value).**

Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein **(e.g., subdivides each block B into a plurality of small regions C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21)**, based on the respective second numbers calculated by the small block isolated point calculation unit **(e.g., When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as P=0 if a number Q of small regions C.sub.i in which q=0 is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15)**,

Ohuchi differs from claim 1 in that he does not explicitly disclose if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit.

Saitoh discloses if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit (e.g., In the block production processing in S15301, one block is produced as a result of collecting (n.multidot.m) (9, in an example case) pixels constituting vertical n.multidot.horizontal m (3.multidot.3, in the relevant example) region. A plurality of thus obtained blocks are then used in determining

whether or not each block in the entirety comprises the halftone -dot region. In this determination as to whether or not each block comprises the halftone -dot region, the relevant block is determined to comprise the halftone -dot region if one or more peak pixels exist in the block, column 111, lines 51-60. Thus each block must have at least one peak pixel to consider as the halftone dot region).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi to include if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit as taught by Saitoh. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi by the teaching of Saitoh to effectively determine the halftone dot region for printing production.

Regarding claim 2, Ohuchi discloses wherein halftone-dot region determination unit is operable to determine that the specified large block is a halftone-dot region if the respective second\_number of isolated points in each small block contained in the large block is greater than or equal to equals or exceeds a second prescribed value (e.g., subdivides each block B into a plurality of small regions C.sub.i, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21); and the region discrimination signal output part 14 outputs a discrimination signal which indicates whether each picture element belongs to the dot region or the line region based on the result of the detection made in the dot region detecting part 13, column

18, lines 32-36. Thus the dot region detecting part 13 must base on a prescribed value to compare with extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B for the region discrimination signal output part 14 outputs a discrimination signal which indicates whether each picture element belongs to the dot region or the line region. Note: For further explanation, Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein **(e.g., subdivides each block B into a plurality of small regions C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21)**, based on the respective second numbers calculated by the small block isolated point calculation unit **(e.g., When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as P=0 if a number Q of small regions C.sub.i in which q=0 is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15).**

With regard to claim 3, Ohuchi discloses wherein the second prescribed value is smaller than the first prescribed value (e.g., the larger numbers as the number of extreme points of block B, column 19, lines 8-21).

With regard to claim 6, Ohuchi discloses an image processing apparatus (e.g., a dot region discriminating apparatus, column 5, lines 32-36) that handles image data,

comprising: a dividing unit for dividing image data into multiple small blocks (e.g., each block B is subdivided into the small regions, column 18, lines 17-18); a small block isolated point calculation unit for calculating a respective first number of isolated points contained in each small block established by dividing unit (e.g., the number q of extreme points is obtained for each of the small regions, column 18, lines 15-21); a large block isolated point calculation unit for calculating a second number of isolated points contained in a large block of the image data, the large block being composed of multiple smaller blocks based on an aggregated amount of the respective first number of isolated points calculated by small block isolated point calculation unit (e.g., the dot region detecting part 13 discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, based on the relationship between a number P.sub.0 of extreme points of the object block B.sub.0, column 18, lines 25-30); and a halftone-dot region determination unit for determining that a specified large block among the large blocks established by the dividing unit is a halftone-dot region (e.g., the dot region detecting part 13 discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, column 18, lines 25-28) if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit (e.g., subdivides each block B into a plurality of small regions C.sub.i, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21), and if the second number

of isolated points calculated to be contained in the specified large block by the large block isolated point calculation unit is greater than or equal to a first prescribed value (e.g., the dot region detecting part 13 discriminates whether or not a predetermined picture element within an object block B.sub.0 shown in FIG. 6 belongs to the dot region, based on the relationship between a number P.sub.0 of extreme points of the object block B.sub.0 and numbers P.sub.1 through P.sub.8 of extreme points of surrounding blocks B.sub.1 through B.sub.8., column 18, lines 25-31. Note: Examiner interprets numbers P.sub.1 through P.sub.8 of extreme points of surrounding blocks B.sub.1 through B.sub.8 as being a first prescribed value).

Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein (e.g., subdivides each block B into a plurality of small regions C.sub.i, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21), based on the respective second numbers calculated by the small block isolated point calculation unit (e.g., When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as  $P=0$  if a number Q of small regions C.sub.i in which  $q=0$  is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15), but he does not explicitly disclose if all small blocks in the specified large block have an isolated point contained

therein, based on the respective first numbers calculated by the small block isolated point calculation unit.

Saitoh discloses if all small blocks in the specified large block have an isolated point contained therein, based on the respective first numbers calculated by the small block isolated point calculation unit (e.g., In the block production processing in S15301, one block is produced as a result of collecting (n.multidot.m) (9, in an example case) pixels constituting vertical n.multidot.horizontal m (3.multidot.3, in the relevant example) region. A plurality of thus obtained blocks are then used in determining whether or not each block in the entirety comprises the halftone -dot region. In this determination as to whether or not each block comprises the halftone -dot region, the relevant block is determined to comprise the halftone -dot region if one or more peak pixels exist in the block, column 111, lines 51-60. Thus each block must have at least one peak pixel to consider as the halftone dot region).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi to include if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit as taught by Saitoh. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi by the teaching of Saitoh to effectively determine the halftone dot region for printing production.

With regard to claim 7, the subject matter is similar to claim 2. Therefore the rejection on claim 7 is set forth as above claim 2.

With regard to claim 8, the subject matter is similar to claim 3. Therefore the rejection on claim 8 is set forth as above claim 3.

Referring to claim 11:

Claim 11 is the method claim corresponding to operation of the device in claim 1 with method steps corresponding directly to the function of device elements in claim 1. Therefore claim 11 is rejected as set forth above for claim 1.

Referring to claim 12:

Claim 12 is the method claim corresponding to operation of the device in claim 2 with method steps corresponding directly to the function of device elements in claim 2. Therefore claim 12 is rejected as set forth above for claim 2.

Referring to claim 13:

Claim 13 is the method claim corresponding to operation of the device in claim 3 with method steps corresponding directly to the function of device elements in claim 3. Therefore claim 13 is rejected as set forth above for claim 3.

Referring to claim 14:

Claim 14 is the method claim corresponding to operation of the device in claim 6 with method steps corresponding directly to the function of device elements in claim 6. Therefore claim 14 is rejected as set forth above for claim 6.

Referring to claim 15:

Claim 15 is the method claim corresponding to operation of the device in claim 2 with method steps corresponding directly to the function of device elements in claim 2. Therefore claim 15 is rejected as set forth above for claim 2.

Referring to claim 16:

Claim 16 is the method claim corresponding to operation of the device in claim 3 with method steps corresponding directly to the function of device elements in claim 3. Therefore claim 16 is rejected as set forth above for claim 3.

With regard to claim 18, Ohuchi discloses substantially the claimed invention as set forth in the discussion above for claim 1.

Ohuchi does not disclose expressly a plurality of counters to count number of isolated points contained in a corresponding one of the small blocks.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have a counter to count isolated points for each small block. Applicant has not disclosed that plurality of counters to count each small block provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a counter to count plurality of small blocks because both perform the same function of counting isolated points.

Therefore, it would have been obvious to combine to one of ordinary skill in this art to modify Ohuchi with to obtain the invention as specified in claim 18.

With regard to claim 19, Ohuchi discloses wherein halftone-dot region determination unit comprises: a first determination unit for determining whether the

calculated first number of isolated points in a large block equals or exceeds the first threshold value (e.g., The larger number of extreme points in each block B is determined as the number of extreme points for that block B, column 6, lines 11-19); a second determination unit for determining whether each of plurality of isolated point counters of small block isolated point calculation unit have each counted at least one isolated point in the corresponding small block contained in the large block (e.g., subdivides each block B into a plurality of small regions C.sub.i, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 15-21); and a third determination unit for determining whether the large block is a halftone-dot region based on the determination results of first determination unit and second determination unit (referring to column 19, lines 8-21 for condition (IIIe)).

With regard to claim 20, Ohuchi discloses wherein third determination unit is operable to determine that the large block is a halftone-dot region if first determination unit determines that the calculated number of isolated points in the large blocks equals or exceeds the threshold value (e.g., Condition (IIIc): In the object block B.sub.0 and the surrounding blocks B.sub.1 through B.sub.8 shown in FIG. 6, all the picture elements n.sub.0 through n.sub.80 within the object block B.sub.0 shown in FIG. 5 are regarded as the dot regions when the number .SIGMA.B of blocks in which the number P of extreme points is greater than or equal to the predetermined threshold value P.sub.TH is greater than or equal to the predetermined threshold value B.sub.TH, column 19, lines 54-61), and second determination unit determines that the predetermined number

of isolated point counters have each counted at least one isolated point in the corresponding small block contained in the large block (referring to column 20, lines 39-52).

With regard to claim 21, Ohuchi discloses wherein the number of isolated points contained in the large block equals the number of isolated points that small block isolated point calculation unit calculates for each small block composing the large block (column 18, lines 15-21. For further explanation, Ohuchi discloses "In the dot region detecting part 13, the following extreme point detection condition (IIIe) is used to determine the number P of extreme points of each block B based on the number of extreme points of the small regions C.sub.1 through C.sub.4", column 19, lines 3-7).

With regard to claim 22, Ohuchi discloses wherein large block isolated point calculation unit is operable to calculate the number of isolated points contained in the large block by calculating the number of isolated points contained in a plurality of contiguous small blocks within a predetermined area of the image data (column 18, lines 15-31. For further explanation, Ohuchi discloses "In the dot region detecting part 13, the following extreme point detection condition (IIIe) is used to determine the number P of extreme points of each block B based on the number of extreme points of the small regions C.sub.1 through C.sub.4", column 19, lines 3-7).

Claims 4, 5, 9, 10, 17, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohuchi (US 5,025,481) as applied to claim 1 above, and further in view of Kingetsu et al. (Kingetsu) (US 6,268,935).

With regard to claim 4, Ohuchi differs from claim 4, in that he does not explicitly teach an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit.

Kingetsu discloses an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit (e.g., blocks 18-25, 27-36, figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi to include an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit as taught by Kingetsu. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi by the teaching of Kingetsu to correct digital image.

With regard to claim 5, Kingetsu discloses further comprising: an image forming unit which performs image formation based on the image data corrected by image processing unit (e.g., bit map formation section 26, figure 1).

With regard to claim 9, the subject matter is similar to claim 4. Therefore the rejection on claim 9 is set forth as above claim 4.

With regard to claim 10, the subject matter is similar to claim 5. Therefore the rejection on claim 10 is set forth as above claim 5.

With regard to claim 17, Kingetsu discloses further comprising a character determination unit (e.g., dot detection section, column 3, lines 23-26) for determining whether at least one character region exists in the image data, wherein: image

processing (e.g., blocks 18-25, 27-36, figure 1) unit is operable to correct the image data based on the results of determination by halftone-dot region determination unit and character determination unit (e.g., dot detection section, discrimination section, figure 1); and image forming unit is operable to perform image formation based on the image data corrected by image processing unit (e.g., bit map formation section 26, figure 1).

With regard to claim 23, Kingetsu discloses further comprising a character determination unit for determining whether at least one character region exists in the image data (column 3, lines 22-26), wherein: image processing unit is operable to correct the image data based on the results of determination by halftone-dot region determination unit and character determination unit (column 4, lines 20-37); and image forming unit is operable to perform image formation based on the image data corrected by image processing unit (e.g., block 26, figure 1, column 12, lines 30-36).

With regard to claim 24, Kingetsu discloses an image processing method as claimed in claim 11, further comprising the steps of: correcting the image data based on the results of determination of determining step (column 4, lines 20-37); and forming images based on the corrected image data (e.g., block 26, figure 1, column 12, lines 30-36).

With regard to claim 25, Kingetsu discloses an image processing method as claimed in claim 14, further comprising the steps of: correcting the image data based on the results of determination of determining step (column 4, lines 20-37); and forming

images based on the corrected image data (e.g., block 26, figure 1, column 12, lines 30-36).

#### **(10) Response to Argument**

Regarding claims 1, 6, 11 and 14, Appellant, on pages 11 of the appeal brief, argues that Ohuchi and Saitoh do not disclose halftone-dot region determination unit or determination steps which determine if all small blocks in the large block have an isolated point contained therein, to determine whether a large block containing the small blocks is a halftone-dot region.

In response: Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein **(e.g., subdivides each block B into a plurality of small regions C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21)**, based on the respective second numbers calculated by the small block isolated point calculation unit **(e.g., When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as  $P=0$  if a number Q of small regions C.sub.i in which  $q=0$  is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15)**.

Ohuchi differs from claim 1 in that he does not explicitly disclose if all small blocks in the specified large block have an isolated point contained therein is halftone-

dot region, based on the respective second numbers calculated by the small block isolated point calculation unit.

Saitoh discloses if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit (e.g., In the block production processing in S15301, one block is produced as a result of collecting (n.multidot.m) (9, in an example case) pixels constituting vertical n.multidot.horizontal m (3.multidot.3, in the relevant example) region. A plurality of thus obtained blocks are then used in determining whether or not each block in the entirety comprises the halftone -dot region. In this determination as to whether or not each block comprises the halftone -dot region, the relevant block is determined to comprise the halftone -dot region if one or more peak pixels exist in the block, column 111, lines 51-60. Thus each block must have at least one peak pixel to consider as the halftone dot region).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi to include if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit as taught by Saitoh. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi by the teaching of Saitoh to effectively determine the halftone dot region for printing production.

Regarding claims 1, 6, 11 and 14, Appellant, on page 11 of the appeal brief, argues that Saitoh discloses an opposite technique in which each block is separately

processed, independent of one another, to determine whether each block individually contains a halftone-dot region.

In response: Examiner disagrees with this argument since Satoh discloses "**A plurality of thus obtained blocks are then used in determining whether or not each block in the entirety comprises the halftone -dot region**", column 111, lines 55-57. These blocks are not separately processed. But the plurality of thus obtained blocks are used in determining whether or not each block in the entirety comprises the halftone -dot region. Moreover, to determine if all small blocks in the large block have an isolated point contained therein, each block needs processed to know if all small blocks in the large block have an isolated point contained.

Regarding claims 2, 3, 7, 8, 12, 13, 15, 16 Appellant, on pages 14-15 of the appeal brief, argues that the first prescribed value of claim 1 and second prescribed value are the same.

In response: Examiner has further explanation, since the number of extreme points in large blocks compare with first prescribed value, and the number of extreme points in small blocks compare with second prescribed value generally are different. Therefore it would have been obvious that these two prescribed values in general are different values including the second prescribed value is smaller than the first prescribed value, but it can be the same value.

Regarding claim 2, as shown in rejecting claim 1, for further explanation, Ohuchi discloses all small blocks in the specified large block have a number of isolated point contained therein (**e.g., subdivides each block B into a plurality of small regions**

**C.sub.i, fig. 16, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C.sub.i of each block B, column 18, lines 17-21), based on the respective second numbers calculated by the small block isolated point calculation unit (e.g., When a number q of extreme points is obtained for each of the small regions C.sub.1 through C.sub.4 within the block B which comprises N.times.N picture elements as shown in FIG. 5 with respect to both the peak and valley, the number P of extreme points of this block B is regarded as P=0 if a number Q of small regions C.sub.i in which q=0 is greater than or equal to a predetermined value Q.sub.TH, column 19, lines 8-15).**

Regarding claims 19, 20, Appellant, on pages 15-16 of the appeal brief, argues that Ohuchi does not disclose or suggest the additional features of the halftone-dot region determination unit as recited in claims 19 and 20.

In response: With regard to claim 19, Ohuchi discloses wherein halftone-dot region determination unit comprises: a first determination unit for determining whether the calculated first number of isolated points in a large block equals or exceeds the first threshold value (e.g., The larger number of extreme points in each block B is determined as the number of extreme points for that block B, column 6, lines 11-19); a second determination unit for determining whether each of plurality of isolated point counters of small block isolated point calculation unit have each counted at least one isolated point in the corresponding small block contained in the large block (e.g., subdivides each block B into a plurality of small regions C.sub.i, and counts the number of extreme points indicating the peaks and the number of extreme points indicating the

valleys for each small region C.sub.i of each block B, column 18, lines 15-21); and a third determination unit for determining whether the large block is a halftone-dot region based on the determination results of first determination unit and second determination unit (referring to column 19, lines 8-21 for condition (IIIe)).

With regard to claim 20, Ohuchi discloses wherein third determination unit is operable to determine that the large block is a halftone-dot region if first determination unit determines that the calculated number of isolated points in the large blocks equals or exceeds the threshold value (e.g., Condition (IIIc): In the object block B.sub.0 and the surrounding blocks B.sub.1 through B.sub.8 shown in FIG. 6, all the picture elements n.sub.0 through n.sub.80 within the object block B.sub.0 shown in FIG. 5 are regarded as the dot regions when the number .SIGMA.B of blocks in which the number P of extreme points is greater than or equal to the predetermined threshold value P.sub.TH is greater than or equal to the predetermined threshold value B.sub.TH, column 19, lines 54-61), and second determination unit determines that the predetermined number of isolated point counters have each counted at least one isolated point in the corresponding small block contained in the large block (referring to column 20, lines 39-52).

Regarding claim 21, Appellant, on pages 15-16 of the appeal brief, argues that Ohuchi does not disclose or suggest the features of claim 21.

In response: With regard to claim 21, Ohuchi discloses wherein the number of isolated points contained in the large block equals the number of isolated points that small block isolated point calculation unit calculates for each small block composing the

large block (column 18, lines 15-21. For further explanation, Ohuchi discloses "In the dot region detecting part 13, the following extreme point detection condition (IIIe) is used to determine the number P of extreme points of each block B based on the number of extreme points of the small regions C.sub.1 through C.sub.4", column 19, lines 3-7).

Regarding claim 22, Appellant, on page 18 of the appeal brief, argues that Ohuchi does not disclose or suggest the features of claim 21.

In response: With regard to claim 22, Ohuchi discloses wherein large block isolated point calculation unit is operable to calculate the number of isolated points contained in the large block by calculating the number of isolated points contained in a plurality of contiguous small blocks within a predetermined area of the image data (column 18, lines 15-31. For further explanation, Ohuchi discloses "In the dot region detecting part 13, the following extreme point detection condition (IIIe) is used to determine the number P of extreme points of each block B based on the number of extreme points of the small regions C.sub.1 through C.sub.4", column 19, lines 3-7).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/QUANG N. VO/

Examiner, Art Unit 2625

Conferees:

/David K Moore/

Supervisory Patent Examiner, Art Unit 2625

/Benny Q Tieu/

Supervisory Patent Examiner, Art Unit 2625